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CALCULUS.

313. Proposed by **M. E. GRABER, A. M., Heidelberg University, Tiffin, Ohio.**

Evaluate the definite integral $\int_0^\infty (e^{-2ax^2}+e^{2ax^2})\,dx$.

314. Proposed by **REV. J. H. MEYER, S. J., New Orleans, La.**

A fox started from a certain point and ran due east 300 yards, when it was overtaken by a hound that started from a point 100 yards due north of the fox's starting point, and ran directly towards the fox throughout the race. Find the lengh of the curve described by hound, both having started at the same instant, with a uniform velocity.

315. Proposed by **C. N. SCHMALL, New York City.**

If $y=f(x)$, show by Taylor's Theorem that

$$f\left(\frac{x}{1+x}\right)=y-\frac{x^2}{1+x}\cdot\frac{dy}{dx}+\frac{x^4}{2\,(1+x)^2}\cdot\frac{d^2y}{dx^2}-\frac{x^6}{2.3.(1+x)^3}\cdot\frac{d^3y}{dx^3}+\ldots \text{ etc.}$$

NUMBER THEORY AND DIOPHANTINE ANALYSIS.

184. Proposed by **E. B. ESCOTT, University of Michigan, Ann Arbor, Mich.**

Prove that $\frac{\pi}{12}=\tan^{-1}\frac{1}{2^2}+\tan^{-1}\frac{1}{8^2}+\tan^{-1}\frac{1}{30^2}+\tan^{-1}\frac{1}{112^2}+\ldots$, where 2, 8, 30, 112..., is a recurring series with the recursion formula $u_n=4u_{n-1}-u_{n-2}$.

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NOTES AND NEWS.

Dr. R. D. Carmichael has been appointed to an assistant professorship in mathematics at the University of Indiana. S.

The one hundred and fifty-third regular meeting of the American Mathematical Society was held at the University of Chicago, on Friday and Saturday, April 28 and 29, 1911. There were in attendance eighty-six members and thirty visitors. Among the members from a distance were Professors Maxime Bôcher and William F. Osgood of Harvard University; Professor Percy F. Smith of Yale University; Professor F. N. Cole, Secretary of the Society, and Dr. N. J. Lennes of Columbia University; and Professor H. B. Fine, President of the Society, of Princeton University. The large attendance was due in part to the fact that this was the first meeting of the Society as a whole, aside from the summer meetings, held in the West since the sessions in St. Louis, at the time of the World's Exposition; but more largely, doubtless, to the desire of the members to hear the retiring presidential address of Professor Bôcher, who was greated by an audience of over one hundred members and visitors. At the dinner on Friday evening, seventy-six members were present and remained till a late hour in social intercourse. There were fifty-three papers presented at the four sessions. S.

At the Summer Session of the Ohio State University, Columbus, Ohio, June 19 to August 11, there will be courses in elementary algebra, plane and solid geometry, plane trigonometry, analytic geometry, differential and integral calculus, and in the teaching and history of mathematics. S.

At the University of Illinois the following courses in mathematics will be given during the next Summer Session, the number of hours being *credit hours* in each case: Advanced algebra, three hours; plane trigonometry, two hours; analytic geometry, five hours; differential calculus, five hours; integral calculus, five hours; synoptic course, daily; theory of equations, daily. S.

At the University of Wisconsin the following courses in mathematics will be offered during the next Summer Session, the hours referring to the number of recitations per week: Elementary algebra, five hours; solid geometry, five hours; plane trigonometry, five hours; analytic geometry, five hours; differential calculus, five hours; complex numbers, three hours; elementary analysis, twelve hours; integral calculus, twelve hours; differential equations, five hours; projective geometry, three hours; differential geometry, three hours; calculus of variations, five hours; theory of integrals, five hours. S.

At the University of Michigan, the following courses in mathematics will be offered during the next Summer Session, the hours referring to the number of recitations per week: Elementary algebra, plane and solid geometry, each four hours; trigonometry, college algebra, and analytic geometry, each four hours; differential and integral calculus, each four hours; introduction to mathematical theory of finance, insurance, and statistics, four hours; courses for teachers in geometry and algebra, and history of mathematics; mechanics, differential equations, projective geometry, and theory of functions of a real variable, each four hours. S.

Miss Mary C. Spencer, of Sophie Newcomb College for Women at New Orleans, Louisiana, has been influential in organizing a Mathematical Club among the secondary school teachers of the city. The club holds regular semi-monthly meetings for its members, and once a year holds an open meeting for the public school teachers of New Orleans. Such a gathering of several hundred teachers was recently addressed by Professor H. E. Slaught of the University of Chicago. F.

The Summer Quarter at the University of Chicago will extend from June 19 to September 1, being divided into two terms, the second beginning July 27. The following courses in mathematics will be offered: Trigonometry, college algebra, plane analytic geometry, solid analytic geometry, differential calculus, integral calculus, elliptic integrals, finite collineation groups, calculus of variations, integral equations, general analysis, synthetic projective geometry, analytic mechanics, vector analysis, introduction to celestial mechanics, reading and research in pure and applied mathematics, teaching of elementary school mathematics, teaching of secondary-school mathematics, and critical review of secondary mathematics. All elementary courses are given five hours per week and advanced courses four hours per week. All courses count for regular college or graduate credit. S.